

The 10-Micron Silicate Feature in Short-Period Comets

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At present, strong silicate emission has been observed only in new and long period comets. To search for silicate emission in the fainter, short-period comets, infrared spectra of three short-period comets were obtained at the NASA IRTF using the Aerospace Corp. Broadband Array Spectrometer (13 ASS). Moderate silicate emission about 20% above the continuum is seen in the spectra of P/Borrelly and P/Faye; the feature is broad and structureless. The shape of the silicate feature will be compared to dust models. The shape of the feature depends not only on the size and composition of the silicate grains, but also on the manner in which the silicate and absorbing material are mixed.

No feature is evident in the spectrum of P/Schaumasse; it is likely that the nucleus of P/Schaumasse was directly detected. If all of the observed flux was from the nucleus, then the effective radius of the nucleus is about 3 km.

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